Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for controlling a signal path in an optical transmission system comprising:

providing first and second subscriber service signal paths;

detecting a failure by periodically checking the first and second service signal paths; and

performing a conventional auto path protection function if the first service signal path has a failure, or performing a new auto path protection function through a message communication channel included in an overhead of a STM-n (Synchronous Transmission Multiplex signal level n) signal if the second service signal path has a failure,

wherein the second service signal path includes an add-drop & through path and supports a through path, an east-west add-drop & through path, and a west-east add-drop & through path when the system is operating in an ADM (Add-Drop Mode),

wherein the east-west add-drop & through path is configured to drop a path signal received from the east to a subscriber service processing unit, to add the path signal received from the subscriber service processing unit to the west, and to pass the path signal received from the west through the east, and

the west-east add-drop & through path is configured to drop a path signal received from the west to the subscriber service processing unit, to add the path signal received from the subscriber service processing unit to the east, and to pass the path signal received from the east through the west.

2. (Original) The method according to claim 1, wherein the first service signal path is a path for providing voice and low-speed data services, and the second service signal path is a path for providing high-speed and very high-speed data services.

3. (Previously Presented) The method according to claim 1, wherein the first service signal path supports a through path and an add-drop path when the system is operating in a terminal operation mode and the ADM, respectively, and further supports a through path and a ring add-drop path in a ring operation mode.

4-7. (Canceled).

8. (Previously Presented) The method according to claim 1, wherein the second service signal path supports a through path, ring add-drop path, east-west add-drop & through path, and west-east add-drop & through path when the system is operating in a ring operation mode.

9. (Previously Presented) The method according to claim 1, wherein the message communication channel uses K1 and K2 bytes of the overhead of the STM-n signal.

10. (Original) The method according to claim 9, wherein the K1 byte comprises:

a protection request signal; and

an Id of a remote system for carrying out a protection request.

11. (Original) The method according to claim 10, wherein the protection request signal comprises:

a no request signal representing that it is unnecessary to carry out protection;

a switch signal for switching only the direction of a signal path;

a round signal for assuring the continuity of a receiving signal;

a reverse request switch signal which is a response signal to the switch signal;

a reverse request round signal which is a response signal to the round signal; and

a manual switch signal which is a manual path switch request.

12. (Original) The method according to claim 9, wherein the K2 byte comprises:

a system status signal for checking the status of a local system by a remote system; and

a local system Id.

13. (Previously Presented) The method according to claim 12, wherein the system status signal comprises:

an idle signal representing a normal state;

a rounded signal representing a state in which a switch protection is carried out;

a manual switched signal representing a state in which a manual path protection is carried out;

a remote defect indication (RDI) signal notifying that a remote system signal has a defect;

a signal fail (SF) signal representing the direction in which a fail is detected and an auto protection message is forwarded; and

an initialization signal representing that a system is in an initialization state.

14. (Previously Presented) The method according to claim 1, wherein protecting the new path is carried out only when the system is operating in a ring operation mode.

15. (Previously Presented) The method according to claim 1, wherein for protecting the new path, a message for protection is transmitted in a signal direction, and a system status is transmitted in both directions.

16. (Previously Presented) The method according to claim 15, wherein the system having received the protection message delivers a response signal notifying a system having transmitted the request signal that the protection request signal has been normally carried out.

17. (Original) The method according to claim 16, wherein the system having received the response signal stops the delivering of the protection request signal.

18. (Previously Presented) The method according to claim 1, wherein for protecting the new path, all connected systems before a failure is detected or protection is carried out are in an idle state, and all systems in the idle state deliver a no request signal (NRS).

19. (Previously Presented) The method according to claim 1, wherein for protecting the new path, all failures that can be recognized by the system are represented as a signal fail (SF), said SF including all failures that can affect path signal services.

20. (Previously Presented) The method according to claim 19, wherein the system having detected the SF delivers a status message of a remote detect indication (RDI) in the direction of detecting the SF, and delivers a SF signal in the opposite direction, thus making an adjacent system understand its status.

21. (Previously Presented) The method according to claim 19, wherein the system having detected the SF delivers a protection request signal for carrying out protection of a ring add-drop & through path in the opposite direction of the direction of detecting the SF.

22. (Previously Presented) The method according to claim 19, wherein the system having detected the SF carries out protection of a ring add-drop path in the opposite direction of the direction of detecting the SF, and changes the opposite direction of the direction of detecting the failure to a signal fail state (SF state), and changes the direction of detecting the failure to a remote defect indication state (RDI state).

23. (Original) The method according to claim 19, wherein the system having detected the SF does not deliver a protection request signal in the direction of detecting the SF.

24. (Previously Presented) The method according to claim 23, wherein the system having received the RDI signal carries out path protection in the opposite direction of the direction of receiving the RDI signal, and changes its status to the switched state.

25. (Previously Presented) The method according to claim 24, wherein the system that has already carried out the protection to be in the switched state carries out protection by checking its status upon receipt of a different path protection request signal.

26. (Previously Presented) The method according to claim 20, wherein the system having received the RDI signal does not deliver any protection request signal to a system disposed in the opposite direction of the direction of receiving the RDI signal.

27. (Previously Presented) The method according to claim 20, wherein the system having received the RDI signal does not deliver a protection request signal to a next system.

28. (New) An optical signal processing node comprising:

a plurality of signal paths configured as a through path, an add-drop path, a ring add-drop path, and an add-drop & through path;

an optical signal transceiving unit that is used to transmit and receive optical signals via at least one of the configured signal paths;

a path signal controller in communication with the optical signal transceiving unit to select at least one of the configured signal paths;

a subscriber service processing unit in communication with the path signal controller to add, to drop, to pass through, or to add, drop, and pass through the optical signals via the optical signal transceiving unit using the at least one of the configured signal paths selected by the path signal controller; and

a system controller that controls the optical signal transceiving unit, the path signal controller, and the subscriber service processing unit,

wherein, for the configured add-drop & through path, the system controller allows the optical signal to be dropped to the subscriber service processing unit, allows the optical signal received from the subscriber service processing unit to be added, and allows the optical signal received from the subscriber service processing unit to be passed through.